

## Coachella Valley Integrated Regional Water Management Implementation Grant Proposal

### *Cost and Benefits Summary*

Attachment 10 consists of the following item:

✓ **Cost and Benefits Summary**

This attachment contains a summary of the costs and benefits associated with each project listed within this Implementation Grant Proposal.

This attachment contains a summary and the estimated costs and benefits of each project listed within this *Coachella Valley IRWM Implementation Grant Proposal* by providing a summary of the cost benefit information from Attachments 7, 8, and 9. Because several projects are being proposed with multiple benefits, this attachment summarizes the costs and benefits for all projects in this grant application.

### **Project-Level Summary**

Tables 10-1 through 10-8 provide summaries of the anticipated water supply, water quality, flood damage, and other benefits for each project. These benefits include monetized, physically quantified, and qualitative benefits as discussed in Attachments 7, 8, and 9.

### **Project 1: Regional Water Conservation Program**

Tables 10-1 and 10-2 provide summaries of the benefits and costs associated with the *Regional Water Conservation Program*.

**Table 10-1: Regional Water Conservation Program Benefits Summary**

Type of Benefit	Assessment Level	Beneficiaries
<b>Water Supply Benefits (see Attachment 7)</b>		
Avoided Water Supply Costs	Monetized	Local, Regional, and Statewide
Avoided Well Replacement Costs	Monetized	Local
Water Supply Reliability	Qualitative	Local, Regional, and Statewide
<b>Water Quality (see Attachment 8)</b>		
Avoided Wastewater Treatment Costs	Monetized	Local
Water Quality Improvements Related to Beneficial Uses	Physically Quantified	Local and Regional
Ecosystem Improvements	Qualitative	Local, Regional, and Statewide
Power Cost Savings	Physically Quantified	Local, Regional, and Statewide
<b>Flood Damage Reduction Benefits (see Attachment 9)</b>		
<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>



**Table 10-2: Regional Water Conservation Program Benefit-Cost Overview**

Benefit-Cost	Present Value (\$2009)
<b>Costs – Total Capital and O&amp;M</b>	<b>\$1,188,352</b>
<b>Monetizable Benefits</b>	
Avoided Water Supply Costs	\$94,235,574
Avoided Well Replacement Costs	\$446,558
Avoided Wastewater Treatment Costs	\$6,544,473
<b>Total Benefits</b>	<b>\$101,226,605</b>
<b>Qualitative Benefits</b>	<b>Qualitative Indicator*</b>
Improved Water Supply Reliability	+
Water Quality Improvements to Beneficial Uses	+
Ecosystem Improvements	+
Power Cost Savings	+

\*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

## ***Project 2: Short Term Arsenic Treatment Project***

Tables 10-3 and 10-4 provide summaries of the benefits and costs associated with the *Short Term Arsenic Treatment Project*.

**Table 10-3: Short Term Arsenic Treatment Project Benefits Summary**

Type of Benefit	Assessment Level	Beneficiaries
<b>Water Supply Benefits (see Attachment 7)</b>		
Avoided Bottled Water Purchases	Monetized	Local
<b>Water Quality and Other Benefits (see Attachment 8)</b>		
Water Quality Improvements (Reduced Arsenic Levels)	Physical Quantification	Local
Human Health Benefits	Qualitative	Local
Avoided Fuel Purchases	Qualitative	Local
<b>Flood Damage Reduction Benefits (see Attachment 9)</b>		
<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>

**Table 10-4: Short Term Arsenic Treatment Project Benefit-Cost Overview**

Benefit-Cost	Present Value (\$2009)
<b>Costs – Total Capital and O&amp;M</b>	<b>\$913,459</b>
<b>Monetizable Benefits</b>	
Avoided Bottled Water Purchases	\$743,030
<b>Total Benefits</b>	<b>\$743,030</b>
<b>Qualitative Benefits</b>	<b>Qualitative Indicator*</b>
Water Quality Improvements (Reduced Arsenic Levels)	+
Human Health Benefits	+
Avoided Fuel Purchases	+

\* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)



### ***Project 3: Groundwater Quality Protection Program–Desert Hot Springs***

Tables 10-5 and 10-6 provide summaries of the benefits and costs associated with the *Groundwater Quality Protection Program–Desert Hot Springs*.

**Table 10-5: Groundwater Quality Protection Program–Desert Hot Springs Benefits Summary**

Type of Benefit	Assessment Level	Beneficiaries
<b>Water Supply Benefits (see Attachment 7)</b>		
Contributions to Recycled Water Supplies	Qualitative	Local, Regional, and Statewide
<b>Water Quality and Other Benefits (see Attachment 8)</b>		
Avoided costs to septic tank owners	Monetized	Local
Avoided well treatment costs	Monetized	Local and regional
Water quality improvements that protect beneficial uses	Physical Quantification	Local and regional
Avoided loss of hotel revenues	Monetized	Local and regional
Avoided loss of tax revenue	Monetized	Local and regional
<b>Flood Damage Reduction Benefits (see Attachment 9)</b>		
<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>

**Table 10-6: Groundwater Quality Protection Program–Desert Hot Springs Benefit-Cost Overview**

Benefit-Cost	Present Value (\$2009)
<b>Costs – Total Capital and O&amp;M</b>	<b>\$2,764,463</b>
<b>Monetizable Benefits</b>	
Avoided costs to septic tank owners	\$1,156,398
Avoided well treatment costs	\$5,816,287
Avoided loss of hotel revenues	\$60,924,686
Avoided loss of hotel tax revenue	\$7,310,962
<b>Total Benefits</b>	<b>\$75,208,333</b>
<b>Qualitative Benefits</b>	<b><u>Qualitative Indicator*</u></b>
Contributions to Recycled Water Supplies	+
Protecting beneficial uses	+

\*Magnitude of effect on net benefits:

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

### ***Project 4: Groundwater Quality Protection Program–Cathedral City***

Tables 10-7 and 10-8 provide summaries of the benefits and costs associated with the *Groundwater Quality Protection Program–Cathedral City*.



**Table 10-7: Groundwater Quality Protection Program–Cathedral City Benefits Summary**

Type of Benefit	Assessment Level	Beneficiaries
<b>Water Supply Benefits (see Attachment 7)</b>		
Protecting beneficial uses	<i>Not Applicable</i>	<i>Not Applicable</i>
<b>Water Quality (see Attachment 8)</b>		
Protecting beneficial uses	Qualitative	Local and regional
Avoided wastewater pumping station O&M costs	Monetized	Local
Avoided replacement costs of municipal wells	Qualitative	Local
Avoided replacement and O&M costs to septic tank owners	Monetized	Local
<b>Flood Damage Reduction Benefits (see Attachment 9)</b>		
<i>Not Applicable</i>	<i>Not Applicable</i>	<i>Not Applicable</i>

**Table 10-8: Groundwater Quality Protection Program–Cathedral City Benefit-Cost Overview**

	Present Value (\$2009)
<b>Costs – Total Capital and O&amp;M</b>	<b>\$1,760,282</b>
<b>Monetizable Benefits</b>	
Avoided Wastewater Pumping Station O&M costs	\$77,399
Avoided Costs to Septic Tank Owners	\$784,194
<b>Total Benefits</b>	<b>\$861,593</b>
<b>Qualitative Benefits</b>	<b><u>Qualitative Indicator*</u></b>
Protecting Beneficial Uses	+
Avoided Replacement Costs of Municipal Wells	+

\*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

## Proposal Summary

Table 10-9 provides a summary monetized benefits and costs for each project contained within this *Coachella Valley IRWM Implementation Grant Proposal*. The overall benefit/cost ratio for the proposal is 26.9.



**Table 10-9: Costs and Benefits Summary**

Project		Agency/Project Sponsor	Total Present Value Project Costs	Total Present Value Project Benefits				Benefit/ Cost Ratio
				Water Supply	Water Quality and Other	Flood Damage Reduction	Total	
(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	Regional Water Conservation Program	Coachella Valley Water District	\$1,188,352	\$94,682,132	\$6,544,473	\$0	\$101,226,605	85.2
2	Short Term Arsenic Treatment Project	Pueblo Unido Community Development Corporation	\$913,459	\$743,030	\$0	\$0	\$743,030	0.8
3	Groundwater Quality Protection Program – Desert Hot Springs	Mission Springs Water District	\$2,764,463	\$0	\$75,208,333	\$0	\$75,208,333	27.2
4	Groundwater Quality Protection Program – Cathedral City	City of Cathedral City	\$1,760,282	\$0	\$861,593	\$0	\$861,593	0.5
<b>TOTAL</b>			<b>\$6,626,556</b>	<b>\$95,425,162</b>	<b>\$82,614,399</b>	<b>\$0</b>	<b>\$178,039,561</b>	<b>26.9</b>

